

cm WHAT IS CLAIMED IS

5 1. A method of controlling undesired plant growth which comprises co-application to the locus of said undesired plants growth dimethenamid and at least one other herbicide in a herbicidally effective aggregate amount.

10 2. A method according to claim 1, wherein the other herbicide is selected from the group comprising auxin transport inhibitors, growth regulator herbicides, photosynthesis inhibitors, pigment inhibitors, growth inhibitors, amino acid synthesis inhibitors, lipid biosynthesis inhibitors, cell wall biosynthesis inhibitors, rapid cell membrane disruptors, carbamates, nitriles, hydantocidines, triketones and diones.

15 3. A method according to claim 2, wherein the other herbicide is selected from the group comprising the sulfonylureas and the triketones and diones.

20 4. A method according to claim 3, wherein the other herbicide is a sulfonylurea herbicide selected from rimsulfuron, metsulfuron, metsulfuron-methyl, nicosulfuron, triasulfuron, primisulfuron, bensulfuron, chlorimuron, chlorimuron-ethyl, chlorsulfuron, sulfometuron, thifensulfuron, tribenuron, ethametsulfuron, clopyrasulfuron, pyrazasulfuron, prosulfuron and halosulfuron.

25 5. A method according to claim 3, wherein the other herbicide is a triketone herbicide selected from the group comprising 2-(2-chloro-4-methanesulfonylbenzoyl)-1,3-cyclohexanedione; 2-(4-methylsulfonyloxy-2-nitrobenzoyl)-4,4,6,6-tetramethyl-1,3-cyclohexanedione; 3-(4-methylsulfonyloxy-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 3-(4-methylsulfonyl-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(4-chloro-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H, 6H)dione; 4-(4-methylthio-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H, 6H)-dione; 3-(4-methylthio-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; (2-nitro-4-trifluoromethoxybenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-

3,5-(4H, 6H)-dione.

6. A method according to claim 2 wherein the other herbicide is selected from one or more of dicamba, nicosulfuron, rimsulfuron, imazethapyr, glyphosate, glufosinate, sethoxydim, fluazifop, sulcotrione, chlorimuron and diuron.

7. A method according to claim 1, wherein the amount of dimethenamid is from 0.1 to 3.0 kg/ha, preferably 0.25 to 1.5 kg/ha.

8. A method according to claim 4, wherein the amount of the sulfonylurea is from 1 to 150 g/ha, preferably 10 to 100 g/ha.

9. A method according to claim 5, wherein the amount of triketone is from 0.05 to 2 kg/ha, preferably 0.1 to 0.6 kg/ha.

10. A herbicidal composition comprising a herbicidally effective aggregate amount of dimethenamid and at least one other herbicide, and an agriculturally acceptable carrier.

11. A composition according to claim 10 characterized in that it contains dimethenamid and at least one other herbicide in a quantity producing a synergistic herbicidal effect.

12. A composition according to claim 10, wherein the other herbicide is selected from the group comprising rimsulfuron, metsulfuron, metsulfuron-methyl, nicosulfuron, triasulfuron, primisulfuron, bensulfuron, chlorimuron, chlorimuron-ethyl, chlorsulfuron, sulfometuron, thifensulfuron, tribenuron, ethametsulfuron, clopyrasulfuron, pyrazasulfuron, prosulfuron, halosulfuron, 2-(2-chloro-4-methanesulfonylbenzoyl)-1,3-cyclohexane dione; 2-(4-methylsulfonyloxy-2-nitrobenzoyl)-4,4,6,6-tetramethyl-1,3-cyclohexanedione; 3-(4-

methysulfonyloxy-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 3-(4-methylsulfonyl-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(4-chloro-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H, 6H)dione; 4-(4-methylthio-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)-dione; 3-(4-methylthio-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(2-nitro-4-trifluoromethoxybenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5-(4H, 6H)-dione.

13. A composition according to claim 10 wherein the active component is selected from one or more of dicamba, nicosulfuron, rimsulfuron, imazethapyr, glyphosate, glufosinate, sethoxydim, fluazifop, sulcotrione, chlorimuron and diuron.

14. A method for combatting grassy weeds in sugar cane which comprises co-application to the locus of said weeds a chloroacetamide herbicide and at least one sulfonylurea herbicide in a herbicidally effective aggregate amount.

15. A method according to claim 14, comprising additionally co-application of an urea herbicide in a herbicidally effective aggregate amount.

16. A synergistic herbicidal composition for the control of grassy weeds in sugar cane comprising a herbicidally effective amount of a chloroacetamide herbicide an at least one sulfonylurea herbicide, and an agriculturally acceptable carrier.

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